

STAIRCASE AT GREENWICH—DETAILS.

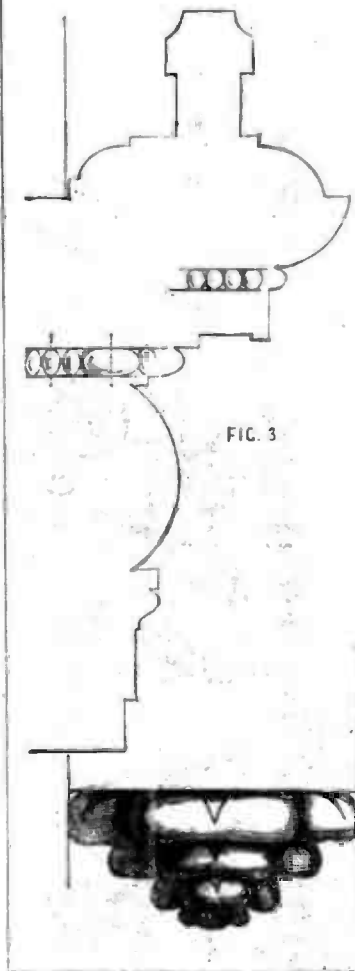


FIG. 3



FIG. 4

favour of stone? The Clerk of the Peace informed Mr. Price that it was no uncommon thing for a bridge belonging to two counties to be built in two different styles, as each county had a right to build its own half as it thought proper! and so, in the spirited exercise of this truly independent principle, authority was forthwith given to enter into contracts under the surveyor's plan and specification for the repair of the Radnor side, and the work was thereupon undertaken by Mr. Llewellyn of Hay. The public safety, it is to be hoped, will not suffer much in its but too probable fall between two such wooden county stools as those of Brecon and Radnor.—A site in Gem-street, Birmingham, has been given by the governors of King Edward's School for the Free Industrial School, for the erection of which the Educational Committee of the Privy Council have voted 500*l.*, and other friends 800*l.* The estimated cost is 2,080*l.* The design, by Mr. C. W. Orford, comprises work-shops, stores, and kitchens on the basement story, and school-rooms, both for boys and for girls, baths and washing rooms, committee rooms, and dining-hall on the ground-floor. The style is simple and appropriate. This institution is a sort of ragged school on an extended and improved system, and well merits a speedy completion of the subscription-list, which is yet short of the estimated cost by 780*l.* Tenders for the erection were advertised for in last week's *BUILDER*.—The Liverpool council mean to apply to the Treasury for permission to raise 25,000*l.* for the erection of more baths and washhouses.—The Lichfield Diocesan Church Extension Society, meeting at Wolverhampton, have lately made the following grants:—Towards building a new church at Lann Head, Willenhall, 850*l.*;

increasing the accommodation at Horton Church, by re-pewing, 20*l.*; rebuilding, with enlargement, the parish church at Codrall, 150*l.*; building a parsonage-house at Wetley Rocks, 200*l.*; ditto at Little Eaton, 150*l.*; ditto at Woodville, 50*l.*; and ditto at Ellen-hall, 200*l.*.—The Church of St. James, Woodside, Horsforth, according to the *Leeds Intelligencer*, to which we are indebted for the following condensed account, was consecrated on 30th ult. It was designed by Mr. C. W. Burlingame, of Albion-street, Leeds. The style is second-pointed, or decorated, and the edifice has been built with reference to future enlargement, by the addition of another aisle and a western tower. At present it consists of a nave and chancel, north aisle and porch, and a bell-gable at the west end. The placing of the porch on the north side has been rendered necessary by the nature of the site, there being no southern approach. The length of the nave is 60 feet, that of the chancel about 30 feet. The west window is of four lights, the east window of three. The tracery in nearly all the windows is varied, and of purely geometrical character. The hood moulding over the interior of the windows, though of simple construction, casts a depth of shadow upon the upper portion of the tracery. The roof is of high pitch, and open to the ridge. An octagonal font, designed by the architect, was presented to the church. Lithographic views of the exterior and interior are to be published. The entire cost, including land, repairs' fund, site of parsonage-house, and repairs of damage recently done to the church by lightning, will be about 2,500*l.* The expenditure on the church itself, and the wall inclosing the churchyard, has been about 1,800*l.* Sittings for 400, all free. The foundation stone of this church was laid on 26th October, 1846.—Watton Church, near Driffield, has been considerably renovated, and the interior repainted.—Recent explorations have led to the discovery that the Anglo-Norman arches of the old church of St. Kentigern are still remaining, built up within the thick whitewashed walls of the present somewhat plain-looking parish church of Irthington. The arches, says the *Carlisle Patriot*, "so far as yet revealed, seem fine specimens of the period, rich with the

elaborate or zigzag ornament, and raised on low sturdy cylindrical pillars. The arch between the chancel and the nave, though disfigured by paint, has long been admired as one of the finest examples of the Early Norman in the county; and we doubt not every lover of what Camden calls 'venerable antiquities' would rejoice to see the church restored throughout in its pristine style. We hear that such restoration, consequent on the recent discoveries, is contemplated, and that funds are not likely to be wanting."

EXPERIMENTS ON THE STRENGTH OF CEMENTS.

THE following is an account of experiments by hydraulic pressure conducted at Messrs. Grissell's, Regent's Canal Iron Works, on blocks composed of Portland and Roman cements and bricks of J. B. White and Sons' manufacture, with a view to ascertain the greatest resistance to crushing of the several materials. We were not present, but believe in the correctness of the statements.

The blocks were uniform in size, 18 in. long, x 9 in. x 9 in. Pressure was exerted on the ends; the power of the press was 75 tons. The trial took place 10th and 31st December, 1847.

Experiment No. 1.—On a block of neat Portland cement, 30 days old.

Pressure. Tons.	Effect.
22½	Scaled at one corner.
37½	Scaled at other corner.
52½	Slightly splitting.
56½	Gone, apparently, for practical purposes.
67½	Slightly going.
75	Ditto.

On removal, found that the pressure held the materials slightly together; virtually for building purposes, block destroyed by being split down the side, but not otherwise broken up. (Block in possession of Mr. Rendel.)

No. 2.—Block of neat Roman cement, 30 days old.

Pressure. Tons.	Effect.
22½	No effect.
26½	Ditto.
27½	Broke up suddenly.

This block was fitted remarkably square to the iron plates, hence no appearance of scaling at the edge (as in experiment No. 1) in the first instance.

No. 3.—Block of White and Sons' stock bricks, set as a 9-inch pier with neat Portland cement, 30 days old.

Pressure. Tons.	Effect.
15½	Bricks crushing.
16	Crushed.

Cement not gone, but bricks crushed; a red-headed soft brick in middle of pier.

No. 4.—Block of stock bricks set as a 9 in. pier, with Portland cement 1 part, sand 3 parts, 30 days old.

Pressure. Tons.	Effect.
26½	No effect till this pressure was put upon it, when it crashed, and crushed up suddenly in the direction of its length. Defect in bricks as before.

No. 5.—Brick pier of same description as foregoing, set with neat Roman cement, 30 days old.

Pressure. Tons.	Effect.
30½	Broke up suddenly, but no appearance of crushing prior to this weight being applied.

No. 6.—Block of Whitby stone from Cragwell quarry, vertical bed.

Pressure. Tons.	Effect.
45	Scaled at bottom corner.
71½	Scaled at top corner.
75½	No further effect.

Not crushed up, and the body of the stone not apparently injured beyond the scale at the angles.

* 36-35 tons on sectional area of 9 inches is 1,555 lbs. per square inch, or 79,815 tons per square foot.

† 37 tons on 9 inches area is 740 lbs. per square inch, or 33,775 tons per square foot.

‡ At 15 tons is 470 lbs. per square inch, or 19,750 tons per square foot.

§ At 26½ tons is 730 lbs. per square inch, or 33,185 tons per square foot.

|| At 30 tons is 850 lbs. per square inch, or 37,500 tons per square foot.

¶ 75 tons per 9 in. area is 2,070 lbs. per square inch, or 123,200 tons per square foot.